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Measurement of the Cost of Living and Wages

By WILLIAM F. OGBURN

THE great upheaval in prices during the past two or three years has forced into the spotlight of public interest the standard of living as a basis of wage settlement. The cost of living has risen quite suddenly and most dramatically, and unless wages rose with the rise in prices the net result was an actual lowering of the standard of living. For this reason the standard of living has become in a great many cases the basis for setting wages.

Thus the Shipbuilding Labor Adjustment Board has on three occasions raised wages to the extent that the cost of living has risen, having done so on each occasion only after an extensive survey and measurement of the increased cost of living has been made. The National War Labor Board in nearly every case that has come before it for settlement has considered evidence and testimony on the increased cost of living. In perhaps half of the cases they have made a settlement of wages directly on the basis of the increased cost of living, and in many of the cases specific provision has been made for the future readjustment of wages on the basis of changes in the cost of living. The Railroad Wage Commission based a recent raise in wages on the results of a special nation-wide survey into the extent that the cost of living had risen. A number of private employers have raised wages after having had special studies made to determine the extent of the increase in cost of living. A few companies have made provision for periodic (in some cases monthly) increases of wages, in accordance with the percentage increases in the cost of living. Some of these companies are the Bankers' Trust Co. of New York City, The Index Visible (Inc.) of New Haven, Conn., the Oneida Community, the Kelly-How-Thompson Co. of Duluth, Minn., the George Worthington Co., and the Printz-Biederman Co. of Cleveland.

During the period of reconstruction following the war, if prices should continue to rise, there will be further adjustments of wages on the basis of rising prices. If, on the other hand, prices fall, it is certainly very desirable that wages should not fall more than

prices. In either event the changing cost of living will be a prime factor in determining wages, and during the period of reconstruction, social and industrial conditions are likely to be such as to need the guiding hand of a strong public policy. Such a public policy must surely consider the standard of living in any directing or control it may employ on the course of wages.

This enhanced importance of cost of living as a factor in wages occasioned by the war and reconstruction, makes it quite desirable to set forth not only some of the facts of recent changes in the standard of living, but also some of the concepts involved which are not wholly clear to the general observer. Furthermore, as the setting of wages by standards of living depends upon the accurate determination of the standard of living, it is also desirable to show something of the technique that has recently been evolved for measuring this complex phenomenon. For only by such knowledge can the issue thus raised by demobilization be met.

In June of 1918 the cost of living had risen around 55 per cent over the pre-war period. I have spoken of June of 1918 as a point of measurement, because a number of studies were independently made of the increase in the cost of living up to approximately this time, and thus there was not only abundant evidence on the increase in the cost of living but the results were in considerable conformity as to the exact percentage of increase. These studies were made by the U. S. Bureau of Labor Statistics, by the Shipbuilding Labor Adjustment Board, by the Railroad Wage Commission, by the National Industrial Conference Board and by the National War Labor Board. Since June, 1918, the measurement of cost of living has been carried on by the U. S. Bureau of Labor Statistics in various localities. These results of the bureau are not yet fully tabulated, but upon the basis of data collected in fifteen shipbuilding centers for August, 1918, the average increase up to that time over 1914 was 65 per cent.¹

These figures are not based on wholesale prices, which fluctuate somewhat more widely than do retail prices, nor on food alone, which is only about 40 per cent of the budget, but are based upon food, rent, fuel and light, clothing and sundries. The increased

¹ The increase in cost of living for New York City up to December 1918 (over December 1914) has been computed and is 75 per cent.

cost of living is found by combining the increased cost of each of these five classes of expenditure, after the increased cost of each class has been weighted according to its relative importance in the budget.

The increase in the price of food is found by taking an average of the increase (or decrease) in some thirty or forty articles of food, each weighted according to the amount spent on it. For a particular locality, prices of each article are taken from eight or ten stores. Food in October, 1918, has increased 75 per cent over the average price for 1914-1915.

The increase in rent for a town or city is found by taking a sample of from 500 to 2,000 houses or apartments, located proportionally in all the districts where workingmen live and finding the average change in rent of these dwellings over the period studied. The increase in rent has not been so rapid nor so great as the increase in most other items of the budget. The changes in rent vary widely from locality to locality. Thus in Detroit from December, 1914, to March, 1918, rent increased 38 per cent, while in Jacksonville from December, 1914, to August, 1918, rents fell one per cent.

The problem in measuring the increase in fuel and light lies chiefly in weighting the changes in price according to the extent that each type of fuel and light is used by the community. In general the increase in coal and wood has been nearly the same in most areas, while changes in rates for gas and electricity vary somewhat by locality. Gas and electricity have usually not changed so much in price, increasing by no great percentage and in rare instances falling slightly. From December, 1914, to August, 1918, fuel and light have increased from 25 per cent to 45 per cent, in most cases being near the latter figure.

Clothing has increased to the greatest extent of any general class of expenditure, ranging from 125 per cent to 70 per cent over the pre-war period to August, 1918, in general the increase being around 95 to 100 per cent. The increase in the price of clothing is measured by getting the prices on about seventy-five articles of clothing used by various members of the family from eight or ten stores in the locality, in each store getting the prices if possible on four or five leading sellers representative of each article of clothing. The increases over the period studied for each of these articles of

clothing are then weighted according to the amount spent for them by the average family, and the average increase is then found.

Sundries include expenditures for insurance, organizations, furniture and furnishings, education, amusement, sickness, car-fare and various miscellaneous expenditures. The increase in sundries is most difficult to get because of the difficulty of getting proper weights and enough large samples for each locality. Most of the studies made have not measured the increase in sundries adequately. From the few careful studies made of changes in prices of sundries, it seems they increase at about the same percentage as the total of the items of the budget.

Some idea of the variation in the increased cost of living in different localities can be had by noting the following figures for the increased cost of living in various shipbuilding centers from December, 1914, to August, 1918, made by the U. S. Bureau of Labor Statistics: Baltimore, 80 per cent; Norfolk, 75 per cent; Bath, Me., 68 per cent; Philadelphia, 67 per cent; Portsmouth, N. H., 67 per cent; Chicago, 65 per cent; Boston, 65 per cent; Jacksonville, Fla., 63 per cent; Portland, Me., 63 per cent; Toledo, Ohio, 63 per cent; New York, 62 per cent; Superior, Wis., 60 per cent; Beaumont, Tex., 60 per cent; Savannah, Ga., 58 per cent; Mobile, Ala., 56 per cent. Perhaps more variation is shown by these figures than really exists, because the month of August is an unsatisfactory month to get prices in, as in some cities the autumn prices are quoted and in others the prices of a former season are quoted. Thus when the month of January, 1918, was taken as the point to which to measure the increased cost of living from December, 1914, the variation was only from 40 per cent to 48 per cent for fifteen shipbuilding centers. In shipbuilding centers and localities doing large amounts of war work, perhaps the increase is slightly greater than in other cities, because in many of these centers of war industries, rent has increased more than in other places. Of course most cities have been doing some war work and this difference in rent must not be unduly pressed. The rise in food, clothing, fuel and certain sundries seems to be general irrespective of locality.

In this manner, then, the increased cost of living has been determined for a definite period and for particular localities for the

purpose of increasing wages by the same percentage of increase that the cost of living has shown, thus enabling the same standard of living to be maintained. But in a number of cases this process of raising wages has been unsatisfactory because it is claimed that the standard of living in the pre-war period which was used as the basis for computing an increase was too low. And certainly a number of American wage-earners were endeavoring to live on less than a minimum of subsistence in the pre-war period. The problem then becomes one of determining what is a proper standard of living. To raise wages according to the increase in the cost of living is in some cases not an adequate method of setting wages, and in these cases wages can be settled satisfactorily only by considering the standard of living as well as the increased cost of living.

The problem in such an event then is to determine the proper standard of living. Up to the present time attempts have been made to measure three different levels of living.

The first of these is what might be called the poverty level and for which there have been drawn a number of budgets, principally by various charity organizations and philanthropic societies. Families living at this level receive charity in the form of gifts or free medical service or in other ways. Or if they do not do this they attempt to live on a level so low as to weaken them eventually to such an extent that disease inevitably overtakes them.

The level above the poverty line is called the minimum-of-subsistence level. This level varies of course from country to country. It is spoken of here as the American standard, it being realized that it varies somewhat in different parts of an area so large as the United States. The minimum of subsistence will also change over a period of time, irrespective of the level of prices. What was the minimum of subsistence a number of years ago is certainly not a minimum of subsistence now. Quite a number of budgets have been set for this level in previous years. The study made by Dr. Chapin in New York in 1907 set such a level. Another was the budget of the New York Factory Investigating Commission in 1914. Such a standard of living corresponds approximately with that of common or unskilled labor, and is what is generally referred to as a living wage.

There has also been a tendency to recognize still another level

which has been called the minimum comfort level, which is of a plane somewhat higher than that of the minimum of subsistence. Thus in the autumn of 1917 in Seattle the arbitration board in a strike of the street railway employes accepted a budget of \$1,500 for a family of five. The settlement was made on the basis of a budget, drawn after considerable study, and called the minimum comfort budget.

The poverty budget at the charity level is chiefly of concern to charity organizations, and it is hoped that less and less attention will have to be paid to this type of budget. On the other hand, the budget at the level of the minimum of subsistence is of the utmost importance because it determines the line below which American families ought not to be allowed under any circumstances to sink. In some localities, sufficient careful study has been made of the minimum of subsistence by various students to lend considerable confidence to the accuracy of their results. Thus, in 1907 in New York City, Dr. Chapin after a very careful study said, "An income under \$800 is not enough to permit the maintenance of a normal standard. An income of \$900 or over probably permits the maintenance of a normal standard, at least as far as the physical man is concerned." For 1914 in New York City the New York Factory Investigating Commission set a minimum-of-subsistence budget at \$876. And in 1915 the Bureau of Personal Service of the Board of Estimate and Apportionment of New York City made a minimum budget estimate for an unskilled laborer's family in New York of \$845. These budgets therefore approximate the minimum of subsistence for New York City before the present great increase in the cost of living, which was first markedly noticeable in the late summer of 1915. If the minimum of subsistence in pre-war times was between \$850 and \$900 for a family of five, what is it now since the great upheaval in prices?

A good deal of investigation has been made on the problem of what is a minimum of subsistence in America today by the cost-of-living department of the National War Labor Board. In the early summer of 1918 this level was described by a budget drawn up item by item. This budget was based largely on data collected by the U. S. Bureau of Labor Statistics, and was worked up in consultation with various experts. This work showed that for a family of five to maintain the minimum of subsistence in a large

eastern city in June of 1918 an income of \$1,380 was necessary. Approximately this estimate was confirmed by a totally different method of approach, namely, by applying the percentages of increase in cost of living to well-recognized budgets worked out in former periods. The increase in food, in rent, in fuel and light, in clothing and in sundries was added to the estimates in former budgets, and so brought up to date. Thus, Dr. Chapin's budget for New York City in 1907 would cost in June, 1918, \$1,390. The budget of the New York Factory Investigating Commission would cost \$1,360 and that of the New York Board of Estimate would cost \$1,320. It is possible to use still another method of estimating the minimum of subsistence. In minimum-of-subsistence budgets food usually costs about 44 per cent of the total, so if we know the cost of food we can estimate the total budget. The U. S. Bureau of Labor Statistics collected 600 dietaries in the New York Shipbuilding district, which cost on the average \$607 a year, the families averaging 3.6 equivalent adult males. Upon analysis this average dietary based on 600 cases yielded only 3,155 calories per adult per day, not allowing anything for waste. So if we consider \$615 as the cost of food per year for a family of 3.4 equivalent adult males, we get a total budget of \$1,390. It seems fairly clear then that in June, 1918, the minimum of subsistence for a family of five living in a large eastern city was from \$1,350-\$1,400. If the cost of living since June, 1918, to the present time (November, 1918) has risen 10 per cent, then the minimum of subsistence at the present time costs about \$1,500 for a family of five in a large eastern city.

Not very much attention has been given to standards of living above the subsistence level for the purpose of setting wages. But the department of the National War Labor Board on the cost of living drew up for the consideration of the board a budget above the subsistence level which was called the minimum comfort level. In June, 1918, the cost of this budget was \$1,760 per year for a family of five. These facts will give the reader fairly good ideas of various levels of the standard of living since the great change in prices.

The importance of the standard of living as a factor in determining wages during reconstruction will probably occasion a good many attempts to define and measure the standard of living in

various industries and in various parts of the country. Such a probability makes it desirable here to develop somewhat the concepts involved in the standard of living and the method of determining proper standards.

The general reader is not at all times fully aware of the following concepts. A standard-of-living budget for wage-earners is thought of by some, and erroneously so, as fitting a particular individual family rather than an average family. But budgets for the purpose of wage adjustment are drawn not for a single family but for a group of families. Hence the items of a budget should be average items. Thus in a particular community the men in some families will ride on the street car twice a day for every work day in a month. Men in other families will not ride to and from work at all. So an average budget for such a community might put down expenditures of the man for car fare for thirty car rides a month, although no man in any family would ride exactly this number of times a month, no more and no less. It is rather an average expenditure of those who ride to work and those who do not. Similarly, the number of suits of clothes bought per year might be expressed in fractions. Items of expenditure are therefore generalized. It follows from the above analysis that items of expenditure should not be set at the lowest possible figure for an individual but for the group as a whole. Thus some men may need only 2,500 calories a day while some will need 6,000 calories, the average for a man at moderately hard work being probably 3,500.

Another conception necessary for a clear understanding of setting wages by constructed budgets is that budget estimates must not be ideal. It cannot be assumed for instance that a housewife has the expert training of a domestic science expert. Nor should budgets be constructed without an allowance for tobacco, when we know that it will be impossible practically for a community to live according to such ideal rules of expenditure. On the other hand it seems questionable whether such constructed budgets should conform absolutely to practice. The expenditure in actual practice will be a function of the income received and as the income is what we want to determine, there is danger of getting in a circle. For instance, families of a group of workmen may spend only \$18 a year for sickness; whereas they should spend more, as

we know from data gathered in sickness surveys that they need to get more medical attention than \$18 will buy. Budget estimates, however, should conform fairly closely to practice.

Budgets are usually constructed for a family of husband, wife and three children. This custom is justified on the grounds that public policy should encourage early marriage and that to prevent the population from decreasing, at least two children should be reared to parenthood.

Formerly budget estimates included chiefly food, rent, fuel and light, and clothing; other items were neglected to a great extent. Food, shelter and warmth were thought of as the minimum of subsistence. We now know that food, shelter and warmth are not the only necessary needs. And so considerable attention is being paid to other items of expenditure in budget making. For instance if we find large numbers of families who do not get enough food and who do not get medical attention when sick, yet frequently attend moving picture shows, the proper conclusion would seem to be that recreation is a necessary need as truly as food, and we know that in American life recreation costs some money. Hence expenditures for recreation should be written into a minimum-of-subsistence budget. And so it is with sundry items.

To some persons not familiar with budgetary studies, the determination of the level of subsistence seems a matter of opinion rather than of science. But there are many scientific approaches to the problem and various ways of eliminating the personal bias. This method cannot be gone into at length here but some of the devices used for locating the point of subsistence may be set forth briefly.

The food requirement can be found by subjecting to food analysis a number of actual dietaries. The cost of that dietary actually used which furnishes the requisite number of calories, grams of protein and the necessary chemical constituents will be set as the minimum amount of expenditure for food for subsistence. The amount for rent can be estimated by selecting a standard house of, say, four or five rooms with bath and finding the average rental for various localities in the community. Or if a number of budgets have been collected, the minimum rent may be determined at a point where overcrowding ceases to exist, hav-

ing determined some standard for overcrowding, as for instance one or one and one-half persons to a room. Perhaps a fair method of determining the fuel and light necessary is to compute for various types of heating apparatus in houses of a certain size the amount of fuel and light used by families that are known to be just above the poverty level but clearly so. The minimum of subsistence in clothing is perhaps most difficult to determine. The usual procedure is to adopt a certain estimate of clothing upon which there has been a fair amount of agreement, such as one overcoat every three years, one hat a year, one cap a year, one suit of clothes a year and so on. At this time of changing prices it is difficult to express these units in price terms which will show agreement. If a number of family schedules have been collected, it is possible to locate a point where the expenditure of clothes for the wife is say 75 per cent of the expenditure for the clothing of the husband, or some such point agreed upon. It is known for instance that when the clothing allowance is too low, the expenditure for the wife's clothing is only a small percentage of the expenditure for the husband's clothing, and that when the allowance for clothes is bountiful that the expenditure on the wife's clothing equals or exceeds that for the husband. There is no general rule for determining the amount necessary for sundry expenditures. The amount for car fare is broken into three classes, that necessary for the husband to spend in going to and from work, that necessary for children to go to and from school, and other car fare; in this way the amount can best be approximated. The amount for sickness can be estimated from a study of the average number of days of sickness a year. There are also various ways of getting expert testimony on the amount of insurance necessary. And so one can set a minimum standard throughout the items of the budget.

Considering the budget as a whole, there are various guide posts that readily tell when the poverty line is passed. Usually, gifts of clothing are indicative of poverty. So also, the method of obtaining fuel, known as "gathering fuel" is often an index of poverty. The point also at which the family ceased to be in debt is significant. Thus in the District of Columbia in 1916 families with incomes lower than \$1,150 were on the average in debt. Usually all these various tests converge upon a particular income and this is spoken of as the minimum-of-subsistence standard.

Formerly, budgets determining standards of living were expressed only in prices. Now, however, at a time when prices are changing very rapidly, a budget expressed in prices is not very intelligible and will be less so the further back the period which it represents. The need is therefore quite manifest for a budget expressed in quantities as well as in prices, and the items should be described also as fully as possible. It is greatly to be hoped that future budget studies will be in terms of quantities adequately described. Furthermore, the more fully a budget is described, the more accurate is the measurement.

Enough has been indicated to show what sort of measurement is necessary if the standard of living is to be used in wage settlements. A budget study of a particular community is quite a difficult undertaking, involves considerable technicality and is quite expensive. In a country as large as the United States and possessing so many localities where wages may be adjusted on the basis of the cost of living, it is an impossible undertaking to make a budgetary study in every community. It would seem that such a difficulty could be met by estimating the cost of living in a city for which we have no budgetary study and by finding the price differential from a city for which we have budgetary studies. In the wage adjustments of the National War Labor Board during the war a very great need was felt for some quick method of determining the differential in cost of living between one city and another. For instance, the wage may have been set in Philadelphia for street car employes on the basis of the cost of living. It is also desirable to set wages in New Orleans for street car men, but there is no cost of living study in New Orleans. It would be much simpler and easier to set the wages in New Orleans if such a differential were known.

But so far there seems to be no quick way of telling how much less it costs to live in New Orleans than in Philadelphia, except by full budgetary studies. It would seem that the way to measure this differential would be to get the prices of an extensive list of commodities such as food, clothing, rent, etc., in Philadelphia and in New Orleans, and the average difference in prices will be the differential in living costs between the two cities. The difference between the prices of the identical commodities between the two places would be very slight indeed. But if determined it would

only mean the difference in prices and not the difference in the cost of living because of differences in habits of living. For instance, the dietaries in New Orleans are quite different from those in Philadelphia. The same articles of food would cost on the average about the same in the two places; but a dietary yielding just as many calories in New Orleans as a different dietary would yield in Philadelphia apparently will cost considerably less. Similarly so simple a differential to measure as rents may be nevertheless difficult to determine, the type and size of house in New Orleans being quite different from that in Philadelphia. There are climatic differences which affect standards in consumption of fuel. Also common brands of clothing between the two places are very few. So it is very difficult to estimate differences in cost of living between two places without making full budgetary studies. As the difference in cost of living between any two places is in most cases small, the error in rough approximations is too great. Probably the best way to handle this problem is to have very careful budgetary studies made in representative localities in representative districts, as for instance in small towns, large towns and large cities in the various geographical areas, and to use the differential thus carefully determined as representative of other differentials. This the U. S. Bureau of Labor Statistics is engaged in doing at the present time.

This point is extremely important in forming any really national policy on wages. At the present time there are considerable differences in levels of wages in different parts of the country. Some observers justify these local or territorial differences by saying that the cost of living is quite different in these areas. Others on the other hand reply that the differences in the cost of living in the various areas are different because wages determine the cost of living and that a uniformity in wages would bring a uniformity in living costs. They say that the identical standard of living prices in the various territorial districts would be very nearly the same in cost in all localities. Obviously such a problem as this should be solved before a satisfactory national policy in regard to wages can be declared. The Railroad Wage Commission and the Shipbuilding Labor Adjustment Commission, both handling wages on a national scale, have been confronted with this problem. In general their findings have been that the differences

in the cost of living in various parts of the country are not so great as are popularly supposed.

In conclusion, then, it must be recognized that there are various determinants of wages, supply and demand, productivity and the standards of living; and these are variously interrelated. In a period of laissez-faire conditions, supply and demand operate particularly strongly. But with the development of social control and the growth of social justice, the standard of living plays a large part in the determination of wages. This has been true particularly during the war because of the increase in prices and the necessity of a high degree of social regulation and control. During the period of demobilization and reconstruction, the standard of living should be equally as important in national consideration. For the gains of democracy, whether it be political or economic in the last analysis, certainly come down to one important base, the standard of living. The standard of living must also be very seriously considered in formulating any national policy in regard to wages. The importance of the standard of living in the adjustment of wages then has been the reason for setting forth in this paper the definition of important concepts involved, something of the technique of measurement recently evolved and also a few of the more important facts in regard to the extent in the rise of the cost of living and the present levels in the standard of living.